

U.S.S.N. 09/827,053

- 2 -

42710aka

**AMENDMENTS TO THE CLAIMS**

Claims 1-9 (Cancelled)

10. (Previously Amended) A gas assist mold dump valve comprising:

a gas controller operable to provide a first fluid stream at a first pressure;

said first pressure being regulated by said gas controller;

a mold cavity operable to receive a fluid from the first fluid stream and discharge the fluid in a second fluid stream at a second pressure;

a regulator having an inlet, an outlet and a vent, the inlet being in fluid communication with the gas controller, the outlet being in fluid communication with the mold cavity, the vent having a vent seat and being in fluid communication with the mold cavity; and

a piston having a dome end and a seat end, the piston being mounted in the regulator for reciprocal movement toward and away from the vent seat and being dimensioned such that the regulator is calibrated to have a near 1:1 dome-to-seat area ratio, the seat end being engagable with the vent seat to open and close the vent, the dome end being in fluid communication with the inlet, the second fluid stream acting on the seat end of the piston and the first fluid stream acting on the dome end of the piston such that the seat end contacts the vent seat and movement of the piston is in positional balance and wherein an increase in the second pressure relative to the first pressure moves the seat end out of contact with the vent seat such that excess pressure in the second fluid stream relative to the first fluid stream is discharged from the mold cavity.

U.S.S.N. 09/827,053

- 3 -

42710aka

11. (Previously Presented) The gas assist mold dump valve of claim 10, further comprising a check valve disposed between and in fluid communication with the inlet and the outlet, the check valve having a valve head and an internal spring, the valve head being moveable between an open position that permits the first fluid stream to flow from the inlet to the outlet and a closed position that prohibits the second fluid stream flowing from the outlet to the inlet.

12. (Original) The gas assist mold dump valve of claim 11 wherein the check valve includes a valve head and an internal spring, the internal spring biasing the valve head the said closed position.

13. (Previously Presented) A gas assist mold dump valve comprising:  
a gas controller operable to provide a first fluid stream at a first pressure;  
said first pressure being regulated by said gas controller;  
a mold cavity operable to receive a fluid from the first fluid stream and discharge the fluid in a second fluid stream at a second pressure;  
a regulator having an inlet, an outlet and a vent, the inlet being in fluid communication with the gas controller, the outlet being in fluid communication with the mold cavity, the vent having a vent seat and being in fluid communication with the mold cavity; and  
a piston having a dome end and a seat end, the piston being mounted in the regulator for reciprocal movement toward and away from the vent seat and being dimensioned such that the regulator is calibrated to have a near 1:1 dome-to-seat area ratio, the seat end being engagable

U.S.S.N. 09/827,053

- 4 -

42710aka

with the vent seat to open and close the vent, the dome end being in fluid communication with the inlet, the second fluid stream acting on the seat end of the piston and the first fluid stream acting on the dome end of the piston such that the seat end contacts the vent seat and movement of the piston is in positional balance and wherein an increase in the second pressure relative to the first pressure moves the seat end out of contact with the vent seat such that excess pressure in the second fluid stream relative to the first fluid stream is discharged from the mold cavity.

14. (Previously Presented) The gas assist mold ump valve of claim 13, further comprising a check valve disposed between and in fluid communication with the inlet and the outlet, the check valve having a valve head and an internal spring, the valve head being moveable between an open position that permits the first fluid stream fluid to flow from the inlet to the outlet and a closed position that prohibits the flow of the second fluid stream from the outlet to the inlet.

15. (Previously Presented) The gas assist mold dump valve of claim 14 wherein the check valve includes a valve head and an internal spring, the internal spring biasing the valve head the said closed position.

16. (Currently Amended) A method for controlling a valve gas assist mold dump valve comprising the steps of:

providing a gas controller operable to provide a first fluid ~~steam~~stream at a first pressure;  
said first pressure being regulated by said gas controller;

U.S.N. 09/827,053

- 5 -

42710aka

providing a mold cavity operable to receive a fluid from the first fluid stream and discharge the fluid in a second fluid stream at a second pressure;

providing a regulator having an inlet, an outlet and a vent, the inlet being in fluid communication with the gas controller, the outlet being in fluid communication with the mold cavity, the vent having a vent seat and being in fluid communication with the mold cavity; and

providing a piston having a dome end and a seat end, the piston being mounted in the regulator for reciprocal movement toward and away from the vent seat and being dimensioned such that the regulator is calibrated to have a near 1:1 dome-to-seat area ratio, the seat end being engagable with the vent seat to open and close the vent, the dome end being in fluid communication with the inlet,

providing a check valve disposed between and in fluid communication with the inlet and the outlet, the check valve being biased in a closed position and being moveable to an open position the open position permitting the first fluid stream to flow from the inlet to the outlet and the closed position prohibiting the second fluid stream flowing from the outlet to the inlet;

supplying the first fluid stream from the gas controller to the gas inlet, the first fluid stream acting on the dome end of the piston such that seat end engages the vent seat and the first pressure being sufficient to place the check valve in the open position such that fluid is communicated into the mold cavity;

discharging the second fluid stream from the mold cavity, the second fluid stream acting on the seat end of the piston and the first fluid stream acting on the dome end of the piston such that the seat end contacts the vent seat and movement of the piston is in positional balance and wherein an increase in the second pressure relative to the first pressure moves the seat end out of

U.S.S.N. 09/827,053

- 6 -

42710aka

contact with the vent seat such that excess pressure in the second fluid stream relative to the first fluid stream is discharged from the mold cavity.

17. (Cancelled)

18. (Currently Amended) The gas assist mold dump valve of ~~claim 17~~ claim 13, further comprising a check valve disposed between and in fluid communication with the inlet and the outlet, the check valve having a valve head and an internal spring, the valve head being moveable between an open position that permits the first fluid stream fluid to flow from the inlet to the outlet and a closed position that prohibits the flow of the second fluid stream from the outlet to the inlet.

19. (Cancelled)

20. (Currently Amended) A method for controlling a valve gas assist mold dump valve comprising the steps of;

providing a gas controller operable to provide a first fluid stream at a first pressure;

said first pressure being regulated by said gas controller;

providing a mold cavity operable to receive a fluid from the first fluid stream and discharge the fluid in a second fluid stream at a second pressure;

U.S.S.N. 09/827,053

- 7 -

42710aka

providing a regulator having an inlet, an outlet and a vent, the inlet being in fluid communication with the gas controller, the outlet being in fluid communication with the mold cavity, the vent having a vent seat and being in fluid communication with the mold cavity; and

providing a piston having a dome end and a seat end, the piston being mounted in the regulator for reciprocal movement toward and away from the vent seat and being dimensioned such that the regulator is calibrated to have a near 1:1 dome-to-seat area ratio, the seat end being engagable with the vent seat to open and close the vent, the dome end being in fluid communication with the inlet,

providing a check valve disposed between and in fluid communication with the inlet and the outlet, the check valve being biased in a closed position and being moveable to an open position the open position permitting the first fluid stream to flow from the inlet to the outlet and the closed position prohibiting the second fluid stream flowing from the outlet to the inlet;

supplying the first fluid stream from the gas controller to the gas inlet, the first fluid stream acting on the dome end of the piston such that seat end engages the vent seat and the first pressure being sufficient to place the check valve in the open position such that fluid is communicated into the mold cavity;

discharging the second fluid stream from the mold cavity, the second fluid stream acting on the seat end of the piston and the first fluid stream acting on the dome end of the piston such that the seat end contacts the vent seat and movement of the piston is in positional balance and wherein an increase in the second pressure relative to the first pressure moves the seat end out of contact with the vent seat such that excess pressure in the second fluid stream relative to the first fluid stream is discharged from the mold cavity.

U.S.S.N. 09/827,053

- 8 -

42710aka

21. (Cancelled)

22. (Currently Amended) The ~~gas-assist~~ mold dump valve ~~of claim 21~~ of claim 20 wherein the check valve includes having a valve head and an internal spring, the internal spring biasing the valve head the said closed position.